



Patient education: Anti-clotting medicines: Direct oral anticoagulants (The Basics)

[Written by the doctors and editors at UpToDate](#)

What are direct oral anticoagulants? — These are prescription medicines that make your blood less likely to clot. They include [dabigatran](#) (brand name: Pradaxa), [rivaroxaban](#) (brand name: Xarelto), [apixaban](#) (brand name: Eliquis), [edoxaban](#) (brand names: Savaysa, Lixiana), and [betrixaban](#) (brand name: Bevyxxa).

These medicines are also known as "anticoagulants," "blood thinners," and "anti-clotting medicines." They are called "direct acting" because they block clotting directly. "Oral" means they are taken as pills.

How are these medicines different from warfarin? — [Warfarin](#) (sample brand name: Coumadin) has been used for many years to prevent and treat blood clots. The direct oral anticoagulants are newer. They work as well as or better than warfarin for most patients, but have some differences ([table 1](#)):

- People taking the newer medicines do not need regular blood tests to check how their blood is clotting, or changes in the dose. People taking [warfarin](#) do need blood tests about once a week to once a month, and they sometimes need to change their dose.
- People taking the newer medicines have very few special rules about their diet (but there are some). People taking [warfarin](#) have to watch the amount of leafy greens and other vegetables they eat and try to eat about the same amount every day. These foods contain vitamin K, which affects the warfarin dose.
- Several of the newer medicines ([dabigatran](#), [apixaban](#), and sometimes [rivaroxaban](#)) might have to be taken two times a day, depending on what they are prescribed for. [Edoxaban](#), [betrixaban](#), and [warfarin](#) are taken just once a day.
- All of the anti-clotting medicines can cause bleeding. Some kinds of bleeding – like bleeding in the brain – are less likely with the newer medicines than with [warfarin](#).
- Most of the newer medicines do not have a good a way to quickly stop their effect on how your blood clots. That means if a person starts bleeding while taking one of these medicines, it can be harder for doctors to stop the bleeding. On the other hand, if a person starts bleeding while on [warfarin](#), there are often ways to control it.
- [Warfarin](#) pills usually cost less than the newer anti-clotting medicines.
- The list of medicines that might change the way [warfarin](#) works is different from the lists for the newer medicines. But it's still important to talk to your doctor about any medicines you take.
- If you take a newer anti-clotting medicine, your doctor might have you take a blood test once in a while. This is to check how well your kidneys are working.
- People with a mechanical heart valve (a device used to replace a damaged heart valve) need to take an anti-clotting medicine. [Warfarin](#) is the medicine used in these patients. People with mechanical heart valves should **not** take the newer anti-clotting medicines.

- The newer anti-clotting medicines are not used in pregnant women and in certain other conditions.

Some of the differences between the anti-clotting medicines are a matter of convenience, and some can be more serious. Ask your doctor which of the medicines is best for you.

Why might my doctor prescribe an anti-clotting medicine? — The main reasons doctors prescribe anti-clotting medicines are to prevent blood clots or to treat blood clots that have already formed. Nothing can completely prevent all blood clots, but these medicines lower the risk of clots.

These medicines do not dissolve clots, but they keep them from growing bigger and moving to another part of the body.

Doctors prescribe anti-clotting medicines to prevent clots in:

- People who have a heart rhythm problem called "atrial fibrillation" – In people with this condition, the medicine helps lower the chances of stroke from a blood clot.
- People who have had hip or knee replacement surgery – These medicines help prevent a blood clot in the legs (called a "deep vein thrombosis" or "DVT") or the lungs (called a "pulmonary embolism" or "PE"). [Betrixaban](#) is only used to prevent blood clots in the legs in certain people who are in the hospital.

Doctors also prescribe anti-clotting medicines for:

- People who have had a blood clot in the legs or lungs
- People who have had a stroke related to atrial fibrillation

The goal is to lower the chances that the blood clot might get bigger or spread, and to lower the chances of new clots forming.

If you need an anti-clotting medicine, your doctor might order blood tests to check how well your kidneys or liver work. If you have or develop kidney trouble, the newer anti-clotting medicines might not be right for you.

What do I need to do? — If you take one of the newer medicines to prevent blood clots, there are certain things you should do. These are described below.

- **Know the strength of your clot-preventing medicine, what the pills look like, and why your doctor prescribed it for you** – The strength of the medicine is given in milligrams ("mg"). Always refill your prescription before you run out of pills.
- **Take your medicine exactly as your doctor tells you to** – It is very important to take these medicines exactly as your doctor tells you to. Take them at the same time each day and do not skip any doses. Do not take 2 doses at once, change the dose, or stop taking this drug without talking to your doctor.
 - Most anti-clotting medicines can be taken either with or without food. But some should always be taken with food. Make sure you understand whether the pill you have needs to be taken with food.
 - If you take [apixaban](#), avoid grapefruit and grapefruit juice. That's because grapefruit can change the effects of apixaban.
- **Store [dabigatran](#) pills in the bottle they came in** – Do not put this medicine in any other container, such as a pill box or pill organizer. If your medicine comes in a bottle, use the pills within 4 months of opening it.
- **Do not break, chew, or open the [dabigatran](#) capsules** – This can change the strength of the medicine. Take dabigatran with a full glass of water after a meal and do not lie down for at least a half hour after taking

it. This will lessen the chance of heartburn or an upset stomach.

- **Do not take pain relievers like [ibuprofen](#), [naproxen](#), or [aspirin](#)** – If you need a pain reliever, ask your doctor which one is safe. [Acetaminophen](#) (sample brand name: Tylenol) is usually OK.
- **Ask your doctor before taking any new medicines** – This includes prescription medicines, over-the-counter medicines, and herbal medicines. Certain medicines can change the effects of the newer anti-clotting medicines.
- **Wear a medical alert tag** – Always wear a bracelet, necklace, or another kind of alert tag that warns people that you take an anti-clotting medicine and why. That way, if you are in an accident and are unable to explain your condition, responders will know how to care for you. Your alert tag should also have the name and phone number of an emergency contact person.

What are the side effects of the newer medicines to prevent blood clots? — The most common side effect is bleeding from any part of your body. The bleeding can be minor or sometimes serious. This even includes inside your body, where you cannot see it.

Call your doctor **right away** if you took more medicine than you were supposed to or if you have any of these possible signs of bleeding:

- Feeling sick to your stomach or throwing up blood or something that looks like coffee grounds
- Headaches, dizziness, or weakness
- Nosebleeds or any bleeding that does not stop
- Dark red or brown urine
- Blood in your bowel movements or dark-colored bowel movements
- Pain, swelling, or black and purple skin (bruising) after an injury

You should also call you doctor if you:

- Bleed from your gums after brushing your teeth
- Have heavy menstrual periods or bleeding between periods
- Have diarrhea, vomit, or are unable to eat for more than 24 hours
- Have a fever (temperature higher than 100.4°F or 38°C)
- Cannot take anti-clotting medicine for any reason
- Are in a car accident, hit your head, or have another type of serious injury that could cause bleeding

Is there anything I can do to lower the risk of bleeding? — Yes. You can:

- Shave with an electric razor rather than a razor blade
- Take care when using sharp objects, such as knives and scissors
- Avoid doing things might make you likely to fall, such as walking on slippery surfaces or climbing on a high stool
- Avoid sports that might cause injury
- Always use a seatbelt
- Avoid using non-prescription medicines that contain an "NSAID" unless you talk to your doctor first. NSAIDs are a group of pain-relieving medicines that includes [aspirin](#), [ibuprofen](#), and [naproxen](#). Your pharmacist or nurse can tell you if any medicine you are thinking of taking contains an NSAID.

- Avoid drinking too much alcohol, which can increase your risk of bleeding
- If you see a new doctor, dentist, or nurse, let him or her know you are taking these medicines

For more detailed information about your medicines, ask your doctor, nurse, or pharmacist for the patient hand-out from Lexicomp available through UpToDate. The Lexicomp hand-outs explain how to use and store your medicines. They also list possible side effects and warn you if your medicines should not be taken with certain other medicines or foods.

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GRAPHICS

Common questions about the different anti-clotting medicines

	Warfarin	Newer anti-clotting medicines (dabigatran, rivaroxaban, apixaban, edoxaban, betrixaban)
How often do I need to take it?	Once a day	Once or twice a day, depending on the medicine and the reason for taking it.
Are regular blood tests required?	Yes	No
Will I take the same dose each day?	Maybe, but it might need to be adjusted a few times to get the right dose. Also, the dose could change if you start another new medicine or if you get sick.	Yes
If I have bleeding, is there an antidote to control it?	Yes	Yes for dabigatran, under development for the others
How many other medicines change the way it works?	Many	Few
Do I need to be careful about my diet while taking it?	Yes – you need to pay attention to how much vitamin K you're getting. You also need to be aware of foods that might interact with warfarin. Many doctors suggest limiting cranberry juice, grapefruit juice, and alcohol to 1 or 2 servings a day or less.	A little – you should avoid grapefruit and grapefruit juice, which can change the way these medicines work.
How does the price compare?	Less expensive	More expensive

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